First Announcement

13th WMO/IAEA Meeting of Experts on Carbon Dioxide Concentration and Related Tracer Measurement Techniques: A Thirty Year Anniversary

19 to 22 September 2005, NOAA/CMDL, Boulder, Colorado

Background:

The 1st meeting of the Experts on Carbon Dioxide (CO_2) Measurements was held 30 years ago in La Jolla, California. Since then, there have been regular meetings attended by leaders of the many national CO_2 research and observations activities. The objectives of these meetings are to promote standardization, quality assurance and to offer a global forum for discussing recent developments, improvements and problems in the measurement community. The World Meteorological Organization (WMO) has sponsored all CO_2 Experts Measurements meetings, including the last held by the Meteorological Service of Canada (MSC) in Toronto, September 2003. The WMO Global Atmosphere Watch (GAW) has created the GAW Scientific Advisory Group (SAG) for greenhouse gases to oversee the global network, quality assurance, calibration, data management and links to users. The SAG members will attend the 13th meeting and act on its recommendations. Because of extensive use of carbon isotopes in studying the carbon cycle, the International Atomic Energy Agency (IAEA) in Vienna became a co-sponsor with WMO in September 1997. Most carbon cycle observation programmes measure not only CO_2 but other greenhouse gases. In recent meetings, these observations have also been addressed.

In 2004, two major developments occurred that underlined the importance of this expert group in Global Earth Observations (GEO). First, the implementation plan of the Global Climate Observing System presented to the United Nations Framework Convention on Climate Change recognized the GAW community as the lead in coordinating global observations of greenhouse gases including ozone. Second, the international partnership on an Integrated Global Observing Strategy (IGOS) accepted the Theme Report on Atmospheric Chemistry entitled Integrated Global Atmospheric Chemistry Observations (IGACO) in which an integrated approach to 13 target groups of chemical constituents including carbon gases was presented for implementation in the next 10 years under WMO, space agency and research community leadership. Both these initiatives rely critically upon the advice and leadership of those attending the Expert Measurement Group meeting.

Global measurements of mixing ratios and isotopic composition of CO_2, CH_4 and other greenhouse gases are made using over 100 globally distributed ground-based sampling locations as well as ships and aircraft. About 17 laboratories from 12 nations are measuring and reporting CO_2 data. They are assisted by personnel at GAW stations in WMO member countries around the world. Carbon flux tower studies are becoming mature and require integration into the global network. Satellite observational capabilities are emerging that also need to be addressed. These measurements provide the basis for understanding global and regional carbon budgets. Inverse modeling techniques use carbon cycle models and the observed spatial/temporal distribution of greenhouse gases to derive estimates of the magnitude and distribution of the sources and sinks of these gases. There remain, however, large uncertainties in the estimates, in part, due to inconsistencies in global observations. The 12th WMO Expert Group meeting in Toronto recommended that particular data quality objectives are met for CO_2 and its isotopes at all stations in the global network (see GAW website http://www.wmo.ch/web/arep/gaw/gaw_home.html) . The 13th meeting will see this extended to other greenhouse gases. The meeting will be "issue- oriented" covering such topics as CO_2, stable isotope, radiocarbon in CO_2, O_2/N_2, CH_4, CO, and N_2O measurements, calibration, quality control, data management, and archiving. New and emerging technology will also be discussed. Participants are expected to openly exchange information and consider including in their presentation a "self evaluation" of the quality of their data and, if needed, plans for improving the data quality in view of the WMO measurement recommendations. A short written report of 3 to 5 pages with bibliography will also be required for inclusion in the Meeting Report published by WMO and posted on the GAW website.

The 13th meeting will be hosted by a major contributor to GAW, the NOAA/Climate Monitoring and Diagnostics Laboratory, with additional support from the Cooperative Institute for Research in Environmental Sciences (CIRES)/University of Colorado and the National Center for Atmospheric Research (NCAR). Further information regarding accommodation, participation, and topics will be forthcoming from the organizers (Ed Dlugokencky, Ken Masarie, Tom Conway, Britt Stephens). Participants are encouraged to offer topics for discussion by email (co2.experts@noaa.gov), or when registering on the meeting website (www.cmdl.noaa.gov/ccgg/co2experts).

Meetings in Boulder traditionally associated with this meeting will be the GAW GHG SAG meeting on 23 September, and the Quadrennial Global Carbon Conference 25-30 September (www.cmdl.noaa.gov/info/icdc7).